

CLAIMS

1. A transmit-receive apparatus comprising a first digital filter for compensating collectively distortion and a synchronous shift in a reception signal, the distortion and the synchronous shift being generated in analog processing from an antenna end to A/D conversion.

2. A transmit-receive apparatus comprising:
a receiver including a first digital filter for compensating collectively distortion and a synchronous shift in a reception signal, the distortion and the synchronous shift being generated in analog processing from an antenna end to A/D conversion; and

a transmitter including a second digital filter for giving an inverse characteristic for compensating distortion given to a transmission signal owing to D/A conversion.

3. The transmit-receive apparatus according to claim 1, wherein said first and said second digital filters also function as another filter in said apparatus severally.

4. The transmit-receive apparatus according to claim 1, wherein said first and said second digital filters severally include a filter to be configured by setting of a filter factor, filter factor estimation means for estimating the filter factor, switch means for switching outputting of the reception signal after passing through said filter to output to said filter factor estimation

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means or to output the reception signal as a reception output, and timing control means for controlling a timing of the switching of said switch means.

5 5. The transmit-receive apparatus according to claim 4, wherein said filter is composed of a plurality of delay elements.

10 6. The transmit-receive apparatus according to claim 1, said apparatus further comprising DC offset compensation means for performing DC offset compensation of the reception signal by means of random data in which occurrence probabilities of "+" and "-" are equal.

 7. The transmit-receive apparatus according to claim 1, wherein a filter factor set in said first digital filter is used in said second digital filter.

15 8. The transmit-receive apparatus according to claim 1, wherein said first and said second filters are configured on a basis of tap coefficients of four sets of real number values, and coefficient estimation of tap coefficient sets concerning an in-phase component and a
20 quadrature component of a filter output is independently performed.

 9. A transmit-receive apparatus including an equalizer, wherein said equalizer comprises a filter configured on a basis of tap coefficients of four sets
25 of real number values, and coefficient estimation of tap coefficient sets concerning an in-phase component and a quadrature component of a filter output is independently

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performed.

10. The transmit-receive apparatus according to claim 9, wherein the tape coefficient is used as at least one of a feed forward tap and a feedback tap.

5 11. A base station apparatus including a transmit-receive apparatus, said transmit-receive apparatus comprising a first digital filter for compensating collectively distortion and a synchronous shift in a reception signal, the distortion and the
10 synchronous shift being generated in analog processing from an antenna end to A/D conversion.

12. A communication terminal apparatus including a transmit-receive apparatus, said transmit-receive apparatus comprising a first digital filter for
15 compensating collectively distortion and a synchronous shift in a reception signal, the distortion and the synchronous shift being generated in analog processing from an antenna end to A/D conversion.

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